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Fortifications and their Armament.

SPEECH

OF

HON. JOSEPH N. DOLPH,

OF OREGON,

IN THE SENATE OF THE UNITED STATES,

Wednesday, July 28, 1886,

On the bill (H. R. 9798) making appropriations for fortifications and other works of defense, and for the armament thereof, for the fiscal year ending June 30, 1887, and for other purposes, the pending question being on the following amendment moved by Mr. DOLPH by direction of the Committee on Coast Defense:

"For the construction of fortifications and other works of coast defense, in accordance with the recommendations of the board on fortifications or other defenses, appointed by the President of the United States under the provisions of the act of Congress approved March 3, 1885, $2,000,000, to be expended under the direction of the Secretary of War."

Mr. DOLPH said:

Mr. PRESIDENT: I am aware of the impatience of the Senate at any further discussion upon this bill or amendments to it; and if the object sought to be accomplished by this amendment were less important than it is I should be willing to allow the vote to be taken in silence. But the necessity for providing defenses for our seacoast and protection for our shipping, and our great commercial cities is so urgent that at the risk of wearying the patience of the Senate I must ask to be permitted to present in a general way what is sought to be accomplished by this amendment and the reasons which induced the Committee on Coast Defenses to offer it.

It is proposed by the amendment which has just been adopted and which was first reported from the Committee on Coast Defenses by the Senator from Connecticut [Mr. HAWLEY], and by the amendment under consideration, to commit Congress to the proposition that the fortification of our coasts shall now be undertaken, and to provide for the commencement of the work, and also to adopt in a general way a plan for the fortification of the coasts, namely, the system recommended by the board on fortifications and other defenses, appointed under the provisions of the act of March 3, 1885.

The subject of coast defense embraces so many topics and so much of technical learning that a full presentation of it, even if I possessed the ability to make it, and I do not, would occupy the attention of the Senate longer than would be justifiable at this late day in the session. It comprehends the question of ships, of armor, of guns, of fortifications, of mines, of torpedoes, of torpedo boats, floating defenses, explosives, and projectiles, and the best material for and the best mode of manufacture of each; in short, almost every question connected with fortifications and a navy sufficient to defend our coasts against the attacks of modern ships of war.

Fortunately many of these questions have been made the subject of examination and report by the several boards which have been constituted under the provisions of acts of Congress. The Secretaries of War have in their annual reports for several years past urged upon the attention of Congress the defenseless condition of our coasts and recommended that the work of fortifying our principal ports should be commenced at once; and various officers of the Army and Navy have in official reports and in other ways made valuable suggestions in regard to suitable and efficient coast defenses.

As we have just heard from the Senator from Connecticut, by reason of the improvements which have been made in guns and armor, our fortifications, which are stated by the board on fortifications and other defenses to have been in 1860 equal to those possessed by any nation in the world, have become worthless and unable to cope with the armored war vessels armed with heavy modern breech-loading rifled guns.

I take it for granted that on both sides of this Chamber we are agreed as to the necessity of fortifying our coasts. The truth is that we have no guns capable of resisting an attack of a modern ship of war, and if we had them we have neither ships nor fortifications prepared to receive them where they could be effectively used to repel a naval attack. Our entire Atlantic and Gulf coast, from the northern boundary of Maine to the southern boundary of Texas, a distance of 3,000 miles and over, is wholly defenseless. Our great centers of wealth, of commerce, and of manufactures are without protection. A single modern ship of war could, before we would be able to improvise a defense, destroy property of a value greater than the necessary cost of fortifying our entire coasts.

I have here a statement which I take from the report of a speech made recently by Hon. JOSEPH WHEELER, of Alabama, in the House of Representatives, a statement in which the unprotected situation of the cities along the Atlantic and Gulf coast and the Pacific coast is described. The statement is as follows:

NEW YORK AND BROOKLYN.

These cities have a population of 1,772,962. One of these vessels could float in 30 feet water off Coney Island, beyond the range of any guns in our forts, and throw projectiles into the business part of the city of New York and to nearly every point in the city of Brooklyn.

I would like to ask what would be the effect if a shell weighing 2,000 pounds should drop and burst at the corner of Wall street and Broadway, and what would be the further effect of a few hundred such shots in New York and Brooklyn. And yet such an occurrence is at this moment a mechanical possibility.

BOSTON.

This city has a population of 369,832. An enemy's vessel could lie in 30 feet of water 5 miles from the State-house in Boston and throw these massive shells into Lynn, Chelsea, Charlestown, the navy-yard, East Boston, Boston, Cambridge, South Boston, Roxbury, and Dorchester.

PORTLAND, ME.

This city, with a population of 35,080, could be shelled by any one of the vessels described in the table, lying off to the northeast of the city, or to the southeast, in more than 30 feet of water, at distances varying from 3 to 4 miles.

NEW BEDFORD.

This city has a population of 26,845. Any vessel with such an armament as I have described could lie off in the outer harbor, at almost any point to the southward of the city, in 27 or 30 feet of water, at any distance the commander might select, from 2 to 6 miles, destroy the bridge to Fairhaven, and either exact a heavy contribution or lay the city in ruins in a few hours.

PROVIDENCE.

The harbor at this point has numerous shoals, which, in the absence of a pilot, would render it impossible for a hostile ship to approach it safely nearer than 6½ miles (Conimicut Point), but the high-powered guns I have referred to could readily destroy the vast and important manufacturing industries which center at Providence, with its population of 104,857, from even a greater distance.

NEW HAVEN.

This city has a population of 62,882. Vessels could rest securely 4 miles from the city, in 30 feet of water, and destroy it in a very few hours.

NORFOLK.

The population of this city is 21,926. Vessels drawing 26 feet of water can approach to within 7 miles, and, with high-powered guns, shell every foot of the city.

BALTIMORE.

This city, with a population of 332,313, is, in a great measure, protected by the difficulties of access, but it would be possible for vessels drawing not more than 15 feet to sail abreast of the city, and some of the vessels carrying guns of 10 miles range draw but 10½ to 15 feet.

WASHINGTON.

The capital of our country was once in the hands of British troops. It is 200 miles from the ocean, but vessels drawing 19 feet can sail to the city. Its population is 159, 871.

RICHMOND.

This city has a population of 63,600. It is 150 miles from the mouth of James River, which has 13 feet of water to the city.

CHARLESTON.

This city has a population of 49,984. There are many points not more than 7 miles from the city from which vessels drawing 25 feet could shell the city.

SAVANNAH.

This city, with a population of 30,790, could be easily protected. Only very light-draught vessels can approach nearer than 10 or 12 miles.

PENSACOLA.

This city has but 6,845 population, but it is important on occount of its excellent harbor. A position could be taken in 30 feet of water south of Santa Rosa Island, the distance being not more than 5 miles from the city.

MOBILE.

This city has a population of 29,132, and could very easily be protected, but at present there is water sufficient to float vessels drawing less than 16 feet to within 4 miles of the city.

NEW ORLEANS.

This city has a population of 216,090. It is 110 miles from the sea, but the largest vessels could sail abreast of the city. The control of the jetties would be a strong element in the defense of the city. Small craft not drawing over 5 feet could enter the lake in rear of the city.

GALVESTON.

The population is 22,248. Vessels drawing 30 feet could select any position not more than 3 miles off and shell the city.

SAN FRANCISCO.

The population is 233,959. The harbor, which is one of the finest in the world, could in the present condition of the defenses be entered, but even if this could not be done, vessels carrying high-powered guns could rest outside the bay in 30 feet of water, at a distance of 6 or 7 miles, and shell the city.

I have referred to the larger cities, but it might be well to mention that our smaller seaports are equally defenseless.

Each of the following-named cities could be shelled by the foreign vessels I have named:

PACIFIC COAST.

Port Townsend, Steilacoom, Seattle Harbor, Olympia, New Dungeness Astoria, Kalama, Portland, Newport, Empire City, Crescent City, Trinidad, Mendocino, Benicia, Vallejo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, and San Diego.

GULF COAST.

Brownsville, Clarksville, Brazos Santiago, Apalachicola, Saint Mark's, Tampa Bay, Cedar Keys, and Key West.

ATLANTIC COAST.

Saint Augustine, Jacksonville, Ferdinanda, Saint Mary's, Port Royal, Georgetown (S. C.), Smithville, Wilmington, Beaufort, Plymouth, New Berne, Edenton, Annapolis, Hampton Roads, Lewes, Atlantic City, Little Egg Harbor, Perth Amboy, Bridgeport, New London, Stonington, Bristol, Newport, Fall River, Vineyard Haven, Nantucket, Provincetown, Barnstable, Plymouth, Lynn, Marblehead, Salem, Gloucester, Rockport, Newburyport, Portsmouth, Saco, Bath, Camden, Bucksport, Bangor, Belfast, Rockland, Eastport, and Calais.

I mention these places merely for the purpose of corroborating the statement I have previously made relative to the defenseless condition of all our seaports.

In addition to the foregoing I also ask the Secretary to read in connection with this matter of the defenseless condition of our Atlantic and Gulf coast an extract from a letter from Bvt. Maj. Gen. Q. A. Gillmore, United States Army, to the Chief of Engineers, dated July 15, 1881.

The Chief Clerk read as follows:

It is an error to suppose that the channels leading into our most valuable harbors are too shallow to admit a modern fleet.

Depth of draught is not a measure of offensive power and never can be. The most powerful batteries are carried on a moderate draught of water. The English turret cruisers Inflexible, Agamemnon, and Ajax, armed with 38-ton and 81-ton guns, throwing projectiles of 700 to 1,700 pounds weight, draw but 25 feet when fully equipped and ready for sea, and high naval authority asserts that armored cruisers of a very formidable type, capable of navigating the ocean with safety and dispatch, can be built on a service draught of 23 to 24 feet. Moreover, the practice of naval construction at the present time unmistakably tends to light-draught vessels, thus destroying that partial security against armored fleets which all our comparatively shallow harbors were formerly and very properly thought to possess.

It seems improbable that many such unwieldly monsters as the four-gun turret ship Dreadnaught and the twelve-gun broadside ship Alexandria, which, together, cost the English Government over $5,000,000, exclusive of armament and outfit, will be built in future.

Disregarding, however, any additional danger to ourselves from vessels of lighter draught than those now afloat, there are among the present armored fleets of Europe only ten cruisers drawing more than 27 feet of water, and only three drawing more than 28 feet, while there are more than half a hundred drawing 24 feet or less.

There are more than a dozen fine harbors on our Atlantic coast—Portland, Portsmouth, Boston, Newport, and Hampton Roads being among the number—easily accessible to the largest war vessels hitherto constructed or contemplated.

There are more than half a dozen other harbors, among which may be specified New Bedford, New London, New York, and Key West, into which a few of the deepest draught men-of-war can not enter. But there is not one of them that does not possess ample depth to pass half the armored cruisers of Great Britain, including vessels armed with the 38-ton and 81-ton guns; all the German armored vessels except one; more than two-thirds of those of the Italian navy; all belonging to the Russian navy except two; all belonging to the Austrian navy except three; all belonging to Holland and Turkey without exception, and a large portion of those belonging to the French and Spanish navies.

The aggregate population clustered closely about these twenty harbors for armored vessels is nearly 3,000,000, while the value of public and private property exposed within easy and destructive range of a hostile fleet can not be far short of $2,000,000,000. The losses that might be inflicted upon these communities in a few hours, in their present unprotected condition, would exceed more than tenfold the entire cost of suitable, permanent defenses for the whole country.

No account is here taken of that incalculable and far greater injury which would be entailed by even the brief presence of a victorious hostile fleet in our waters, keeping the whole coast in alarm, and deranging and destroying the business and industry of the people.

There is yet another numerous class of harbors, with still shallower channels of entrance, into which a draught of 22 to 24 feet can be safely carried, many of them being the centers of extensive commercial and manufacturing interests, which are exposed to the attacks of the lighter draught iron-clad cruisers.

It appears therefore that our entire Atlantic and Gulf coasts from Maine to Texas, a distance of more than 3,000 miles, is peculiarly at the mercy of a hostile naval power, and that our largest centers of population, commerce, and manufactures, where the greatest values are accumulated, and hence where the greatest temptations are offered and the greatest injury could be inflicted

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n the briefest interval of time, are within easy reach of the most destructive engines of war born of modern invention and science.

Mr. DOLPH. The Pacific coast is equally defenseless. The harbors of San Francisco and Puget Sound will admit of the entrance of the largest ships of war afloat, while more than one-half of the vessels of the navies of the great powers of Europe could enter the mouth of the Columbia River and reach Portland at most seasons of the year. The fortifications and guns on the Pacific coast—at San Francisco, at San Diego, and at the mouth of the Columbia—are like those on the Atlantic coast, utterly useless for purposes of modern warfare. We have not to-day, as was substantially stated by the Senator from Connecticut, a single fort that could not be demolished with ease by a projectile fired from a modern steel rifle of the smallest caliber. We have not to-day a ship of war that could not be pierced through and through by a projectile fired from a 5-inch steel rifle, or even from a rapid-firing gun.

We have to-day in the Army no modern guns. There are, I believe, two steel breech-loading rifles of small caliber in process of construction for the Army as experimental guns, the construction of which was authorized by a provision contained in the fortification appropriation bill of 1883, in accordance with the recommendation of the Senate Committee on Ordnance. We have not to-day in the Navy any high-power modern guns or any steel rifles except those already constructed and in process of construction at the Washington navy-yard, and elsewhere by contract, for the armament of the new cruisers.

This is not the worst feature of the case. These things can not be furnished in a day. It will take years to provide them. According to the report of the gun foundry board, which is approved by the board on fortifications and other defenses, it will take from one to three years to prepare a plant sufficient to forge the steel ingots required for the construction of a 16-inch steel rifle, and it will take two years thereafter to assemble the parts and manufacture the gun. It will take many years for the two plants, which it is proposed to secure by the two bills which have been reported from the Committee on Coast Defenses to authorize the Secretary of the Navy and the Secretary of War to contract for the supply of ingots for steel guns and armor and steel for other purposes for the Navy, to cast and forge the ingots which will be required for the guns necessary to fortify our principal seaports.

It will take years to construct the foundations for the gun emplacements, and the magazines and engine-rooms of the fortifications. If we are to have fortifications, modern ships, and modern guns in time of war, we must provide them in advance. For an army we may wait until an emergency arises which requires it and depend upon the patriotism of the people to respond to the country's call for its defense. With a small standing army and a sufficient number of officers educated in the theory of their profession and with some experience in the field we may be able to do as we did at the breaking out of the civil war, speedily organize and equip an efficient army.

The same thing may be said of the Navy; but there are some things that can not be provided as readily as an army; there are some things that can not be improvised. The time was, and that not more than fifty or seventy-five years ago, when the great nations of Europe required six months to get ready for war. Now their armies and navies are in constant readiness, and war is often proclaimed at the cannon's mouth before the manifesto has issued. Modern wars are fought and ended and the unsuccessful nation pays the cost in less time than it would take us to build a single fortification or a single ship of war or even to manufacture a single modern gun.

The great nations of Europe are fortifying their coasts with the most formidable defensive works that human ingenuity can devise. They are providing themselves navies with modern ships of war, armored ships, armed with the most powerful guns that have been invented. The time has not arrived when the nations of the earth shall beat their swords into plowshares and their spears into pruning-hooks. "Peace is the dream of philosophers, but war is the history of man."

The defenseless condition of our seacoasts, the unprotected condition of our shipping and our great cities, are not calculated to procure us immunity from insult or to command respect abroad. They are sources of national weakness and of national danger; and to-day there is no duty more imperative on the American Congress than that of providing for the national defense. We should be prepared not only to defend our coasts, but to punish an insult to our flag wherever it floats.

The times are ripe for undertaking the work. The people demand it. Why do we procrastinate? We have the experience of the great nations of Europe that have spent years and expended millions of dollars in experimenting with guns, with armor, and with ships. We have appointed boards to examine the questions of ships, of armor, of guns, of fortifications, and other defenses, and we have their reports, and we know enough about the subject now to undertake this work in accordance with plans that will admit of the adoption of any improvement which may be hereafter made in guns or in armor.

I agree with the Senator from Connecticut; for I, too, do not regard it as a matter of regret that since the war we have been engaged in other matters for the development of our country, and have spent comparatively nothing in the manufacture of modern guns, or of armor, or of ships of war. We have undoubtedly saved large sums by so doing. We may take advantage of the experience of other nations; we may study their failures, and their successes, and so far as the character and type of ships and armor and guns are concerned we may commence the work at the point which they have attained after a quarter of a century of costly experience.

The objects to be gained by coast defense are the protection of our shipping, the fortification of the great cities that line our coasts, with their costly public buildings, their business blocks, their fine residences, and their accumulations of manufactured and agricultural products, they being also centers of extensive systems of inland transportation by water and rail, and the providing of fortified harbors of defense for our merchant marine, both foreign and coastwise, in case of war. Why, sir, in case of war with a foreign nation possessing a modern navy, or even with a nation possessing a single modern war ship, our extensive coastwise commerce, extending over 4,000 miles of coast, not including the coast of Alaska, would be seriously interrupted, if not wholly destroyed. And in order that our merchant marine should not be entirely destroyed in case of war, it will be necessary to provide fortified harbors of refuge into which our ships could retire, because it would be utterly impracticable with any navy we can ever hope to possess to protect our extensive coastwise commerce by a navy alone.

We require fortified harbors of refuge for the vessels of our Navy, our unarmored cruisers, because while they might be able, on account of their greater speed, to escape from armored vessels of the enemy, they would require fortified harbors into which they could retire for the purpose of securing coal and other supplies. It will be seen that the importance of a harbor when considered in connection with coast defenses does not depend alone on the value of the property exposed to destruction, the amount of commerce that centers there, or the amount of shipping in the port, but the question of providing fortified harbors of refuge for our merchant marine becomes an important factor.

This brings me to the consideration of the report of the board on fortifications and other defenses. That board has named twenty-seven ports as the ports at which fortifications are most urgently needed. They are New York, San Francisco, Boston, the lake ports, Hampton Roads, New Orleans, Philadelphia, Washington, Baltimore, Portland (Me.), Rhode Island ports in Narragansett Bay, Key West, Charleston (S. C.), Mobile, New London, Savannah, Galveston, Portland (Oreg.), Pensacola (Fla.), Wilmington (N. C.), San Diego (Cal.), Portsmouth (N. H.), defenses of Cumberland Sound at Fort Clinch, defense of ports on the Kennebec River, Maine, New Bedford, Mass., defense of ports on the Penobscot River, Maine, at Fort Knox, and New Haven, Conn.

The board did well in placing San Francisco the second on the list. I do not think they did as well in placing Portland, Oreg., or rather the mouth of the Columbia River, the eighteenth on the list.

As I have already said, the question of providing fortified harbors of refuge should be taken into consideration when we undertake to determine at what ports fortifications are most urgently needed. I think the board underestimated the commerce of Portland. In addition to its foreign commerce, the vessels engaged in the transportation of wheat and flour, and salmon and wool and lumber, it has a great and rapidly increasing coastwise commerce, which, when the resources of the Northwest are further developed—and they are now rapidly developing—and when Alaska has been occupied and its resources developed to some extent, will increase to great proportions. Again, look at the condition of the coast. From Cape Farewell, the northern boundary of Washington Territory, on the Pacific Ocean, to the southern boundary of California, is 1,630 miles. The distance from San Francisco to the mouth of the Columbia River is 550 miles, and in all that distance there is not a harbor into which the larger vessels engaged in the coasting trade of that coast can enter.

I think, therefore, it is important to provide for the fortification and defense of the mouth of the Columbia River, not alone to protect the commerce of the Columbia River and the cities of Portland and Astoria, which might without sufficient defenses be reached by a hostile armored vessel, but to provide a fortified harbor of refuge for the vessels engaged in our coastwise commerce. Portland should have been placed higher on the list, and Puget Sound should have been added to it.

Mr. FRYE. Great Britain will have a place all fixed up for you.

Mr. DOLPH. I was just going to allude to that. The senior Senator from Alabama [Mr. MORGAN] in discussing in the Senate the bill for the admission of Washington Territory during the present session called attention to the foresight and sagacity of the British statesmen who secured for Great Britain a portion of the waters of Puget Sound and of the islands that are encircled by them. He called attention to the fact that at the southern end of Vancouver's Island Great Britain has a navy-yard and a dry-dock larger than any possessed by the United States on the Atlantic coast, while just south on the American shore were the cities of Port Townsend and Seattle and Tacoma and Olympia entirely uprotected, the United States never having thrown a shovelful of earth toward constructing a fortification upon Puget Sound.

The Senator might have gone further and told how the British Government by large subsidies has secured the construction of a transcontinental railroad entirely upon its own soil, which gives it facility for massing large bodies of troops rapidly upon the Pacific coast. He might have stated that the harbors upon the British side in Puget Sound are large enough for the navies not only of Great Britain but of the world to float in safety. He did state that Great Britain had at the time of his remarks stationed there one of the vessels that shelled Alexandria, with a distinguished British admiral in command. He might have told you—for such is the fact—that Great Britain keeps constantly there from one to three vessels of war, a menace against the United States. I clipped from a city paper the other morning something which I will read. It is taken from the National Republican of Saturday, July 24, 1886:

OUR NORTHERN NEIGHBORS ARE AT IT

is the heading.

> HALIFAX, N. S., *July* 23.
>
> A party of royal engineers, under command of Lieutenant-Colonel O'Brien, left here last Monday for British Columbia. They go to look over the ground with a view of reporting to the imperial authorities as to the best manner of fortifying the Pacific coast.

The Straits of Juan de Fuca, running east and west, separate the American possessions from Vancouver's Island, and that strait and the canal De Haro form the boundary between British Columbia and the United States. South of this boundary line there are two entrances to the bays and harbors of Puget Sound, upon which are situated the cities I have named. One is Deception Pass; the other is Admiralty Inlet. Deception Pass is a narrow inlet through which the tide ebbs and flows with great velocity and which could only be passed by large vessels of war at favorable stages of the tide, and may be easily defended. The defense of Admiralty Inlet would be more difficult. The distance between Wilson's Point, which is on the mainland, and Admiralty Head, which is upon the island opposite, is 4 miles. I think the largest vessels of war could float in any part of the channel, but with the increased range of modern guns it would not be difficult to fortify that channel by batteries on either side. Two miles is considered an efficient range for land batteries, and would be sufficient to insure the destruction of almost any vessel whose armor could be pierced by modern guns mounted upon land fortifications.

It must be apparent to every one that unless the entrances to Puget Sound are fortified, in case of a war with Great Britain, and probably in case of a war with any foreign country, we must give up Eastern Washington, or Puget Sound, and the cities upon it, with all their wealth and commerce, to the enemy.

In this connection, I submit a letter from Brig. Gen. Nelson A. Miles, then commanding the Department of the Columbia, to the Assistant Adjutant-General, Division of the Pacific:

> HEADQUARTERS DEPARTMENT OF THE COLUMBIA,
> *Vancouver Barracks, Wash., July* 7, 1885.
>
> SIR: I desire again to call attention to the importance of the fortifications at the entrance of Puget Sound.
>
> In company with Colonel Mendell, Major Jones, and Captain Powell, of the

Engineer Corps, I have recently visited the principal points that have heretofore been mentioned in several communications from these headquarters, and am fully impressed with the necessity of the Government taking such action as will secure proper defense to the great commercial interests of Puget Sound. These are constantly increasing every year, and have now reached such magnitude as to become of national interest.

Many reports have been forwarded and are now on file in the War Department, and particularly in the office of the Chief Engineer of the Army.

Last year I detailed a board of experienced officers, consisting of Major Rodgers, Captain Taylor, and Captain MacMurray, to examine the subject, and their report was forwarded to division headquarters.

Many valuable points have been reserved, but I regard the two main entrances to Puget Sound as of the first importance for present consideration, namely, Admiralty Inlet and Deception Pass.

Suitable ground commanding the entrance to Deception Pass has been reserved by the Government. That at Admiralty Head, Point Wilson, and Marrowstone Point has been reserved only in part, and a sufficient sum should be appropriated, in addition to that required for defensive works, to secure a permanent title for the Government.

One objection to any action being taken toward the defense of this inlet has been the distance between Point Wilson and Admiralty Head, about 4 miles, but this it is believed can be greatly overcome now by the use of modern appliances.

I recommend that the attention of Congress be called to this subject in time for action during the coming session.

The British Government is now expending a very large amount of money in completing its navy-yard and dry-docks at Esquimalt, near Victoria, British Columbia, and has kept during the past ten years from a single ship-of-war to a small fleet in these waters, and I think it advisable that our Government should take an equal interest in the establishment of a naval station in this part of the United States.

Several reservations have been made on the Straits of Fuca and Puget Sound for naval purposes.

What point is best suited for all the requirements of the Navy could probably best be determined by a board composed of naval officers.

Lake Washington, near Seattle, has many advantages for such a purpose, it being a lake of fresh water of great depth, and in close proximity to the deep water of the sound.

I request this communication be referred to Colonel Mendell for remark.

Very respectfully, your obedient servant,

NELSON A. MILES,
Brigadier-General Commanding.

To the ASSISTANT ADJUTANT-GENERAL,
Division of the Pacific, Presidio, San Francisco, Cal.

It seems to be settled that a complete defense can only be made with modern guns of high power, mounted upon fixed or floating batteries. Theoretically it is possible to defend our coast by a navy consisting of a sufficient number of modern war-ships. Practically it can not be done. To do so it would be necessary to possess a navy so large that we could concentrate at every one of these twenty-seven ports which should be defended according to the report of the board on fortifications or other defenses and other ports which are not included in their list, a navy larger and more powerful than any naval force which could be brought against them. It will be seen at once that the number of ships required for such a character of defense would be practically beyond the ability of the Government to provide.

The defenses recommended by the board consist of armored turrets revolving or fixed, armored casemates, barbette batteries, mortar batteries, and floating batteries. Floating batteries are recommended for the ports of San Francisco and New Orleans. They are recommended at San Francisco because the city is situated so near the sea that a modern ship of war could anchor outside the harbor and throw projectiles into the city. It is necessary for the defense of the port therefore to have these floating batteries to meet and repel the enemy outside the harbor. They are recommended for the defense of the mouth of the Mississippi because owing to the nature of the soil sufficient foundation for turrets and land fortifications can not be there obtained.

As was said by the Senator from Connecticut, it is not deemed practicable to thoroughly defend a harbor by means of land fortifications alone, because modern ships of war with such armor as they carry would be able in the night-time, or even in the day-time, to sail by our fortifications, get beyond the range of the guns and destroy the cities our fortifications are intended to protect. It is therefore necessary to have mines or clusters of torpedoes as obstructions in the channel to detain the armored vessels of the enemy within the range of the heavy guns of the forts until they can be effectively used upon them. These mines must be protected by shore batteries specially designed for that purpose. The mines will be operated by electricity. The operating room and the cable which extends from the operating room into the water must be protected by armor. Electric search-lights will also be required, so that at night an enemy will be detected if he undertakes to remove the torpedoes or grapple for their connections.

As was stated by the Senator from Massachusetts, modern guns have arrived at such perfection that they throw a projectile weighing 22,000 pounds and have a range of 11 miles. It is said that the 10-inch cast-iron smooth-bore gun, which was the largest gun we possessed in 1860, had a muzzle energy of 2,000 foot-tons, while the modern steel rifles have a muzzle energy ranging from 20,000 to 35,000 and 40,000 and even 61,000 foot-tons of muzzle energy, and the projectiles have increased in size more than twenty fold.

I read just now in discussing another amendment a statement showing the number and character of guns possessed by the Army. We have in the Army 2,065 guns, all smooth-bore muzzle-loading cast-iron guns with the exception of the few steel-lined converted rifles, and all comparatively worthless. We have in the Navy 3,285 guns of the same character, of little value. The only modern guns we have are the modern breech-loading steel rifles, which have been recently constructed for the armament of our cruisers. These are 5-inch, 6-inch, 8-inch, 10-inch, and 10½-inch breech-loading, built-up, forged-steel rifles of the latest type.

We have constructed and in process of construction two steel breech-loading rifles of 5-inch caliber, twenty-one of 6-inch caliber, eight of 8-inch caliber, two of 10-inch caliber, and one of 10½-inch caliber, making thirty-four in all. That is our means of defense so far as guns are concerned.

So far as our forts are concerned, as was said by the Senator from Connecticut to-day, they are not only unsuited for defense but they are in such a condition that they would be positively dangerous to the occupants in case of a naval attack, and would be readily destroyed by projectiles fired from a modern gun of the smaller caliber.

Our present Navy consists of one first-rate, the Tennessee, of 4,840 tons displacement; eleven second-rates, the Trenton, Lancaster, Brooklyn, Pensacola, Richmond, Hartford, Omaha, Lackawanna, Vandalia, Shenandoah, and Powhatan, varying in displacement from 2,100 to 3,980 tons; and nineteen third-rates, the Juniata, Ossipee, Quinnebaug, Swatara, Galena, Marion, Mohican, Iroquois, Wachusett, Kearsarge, Adams, Alliance, Essex, Enterprise, Nipsic, Yantic, Monocacy, Alert, and Ranger, varying in displacement from 900 to 1,900 tons.

The Secretary of the Navy in 1884 reported that out of this number the Tennessee, the Lackawanna, the Powhatan, and the Wachusett would be condemned when surveyed, and that it was estimated that there would pass out of the service within six years the Brooklyn, the Hartford, the Iroquois, the Kearsarge, the Pensacola, and the Richmond.

There should be added to these thirty-one vessels four vessels of the fourth-rate of small displacement, the Michigan, the Palos, the Pinta, the Despatch, and the Thetis.

We also have two torpedo rams, the Intrepid, undergoing alterations at New York, and the Alarm at New York out of commission.

We also have fourteen single-turreted iron-clad monitors, which are all of them reported as being out of repair and requiring more or less repairs to make them serviceable. We have also launched, and awaiting appropriations to complete them, five double-turreted monitors.

I hold in my hand a table, taken from the speech already referred to of Hon. Joseph Wheeler, made in the House of Representatives, showing the number of guns afloat ranging 10 miles or upward owned by foreign nations, with the names, the maximum armor, the draught of ship, the number and caliber of guns, and also guns afloat ranging from 9 to 10 miles, which I submit:

GUNS AFLOAT RANGING POSSIBLY TEN MILES OR UPWARD.

Nation.	Ship.	Maximum armor.	Draught.	Guns.	Caliber.
		Inches.	*Ft. in.*	*No.*	*Inches.*
England	Conqueror	12	24 0	2	12
	Colossus	18	26 3	4	12
	Edinburgh	18	26 3	4	12
	Collingwood	18	26 3	4	12
	Rodney	18	25 3	4	13.5
	Benbow	18	27 0	2	17
	Camperdown	18	27 3	4	13.5
	Howe	18	27 3	4	13.5
	Anson	18	27 3	4	13.5
	Hero	12	24 0	2	12
	Renown	18	27 3	2	16.25
	Sanspareil	18	27 3	2	16.25
France	Amiral Dupefré	21.6	26 9	4	13.4
	Dévastation	15	24 11	2	10.6
	Foudroyant	15	24 11	4	13.4
	Terrible	19	24 7	2	16.5
	Tonnant	17¾	16 9	2	13.4
	Vengeur	13¾	16 9	2	13.4
	Am. Baudin	21⅝	26 0	3	16.5
	Formidable	21⅝	26 0	3	16.5
	Furieux	19⅝	21 7	2	13.4
	Indomptable	19⅝	24 7	2	16.5
	Caïman	19⅝	24 7	2	16.5
	Requin	19⅝	24 7	2	16.5
	Marceau	17¾	27 3	2	13.4
	Hoche	17¾	27 3	2	13.4
	Magenta	17¾	27 3	2	10.6
	Neptune	17¾	27 3	3	13.5
	Brennus	17¼	26 8	4	13.4
	Charles Martel	17¼	26 8	4	13.4
Italy	Italia	18.9	30 3	4	17
	Lepanto	18.9	29 6	4	17
	Ruggiero di Lauria	17.7	25 11	4	17
	Andrea Doria	17.7	29 6	4	17
	F. Morosini	17.7	25 11	4	17
Germany	Salamander	8	10 2	1	12
	Natter	8	10 2	1	12
	Hummel	8	10 2	1	12

GUNS AFLOAT RANGING POSSIBLY TEN MILES OR UPWARD.—Continued.

Nation.	Ship.	Maximum armor.	Draught.	Guns.	Caliber.
		Inches.	*Ft. in.*	*No.*	*Inches.*
China	Ting Yuen	14	20 0	4	12
	Chen Yuen	14	20 0	4	12
Russia	Catherine II	24	27 0	4	12
	Tchesme	24	25 0	4	12
	Sinope	24	25 0	4	12
Denmark	Tordenskiold	8	15 0	1	13.8

GUNS AFLOAT RANGING POSSIBLY NINE TO TEN MILES.

England	Inflexible	24	25 4	4	16
France	Friedland	7⅞	29 4	2	10.6
	Redoubtable	14	24 10	4	10.6
	Duguesclin	9⅞	24 10	4	9.5
	Bayard	9⅞	24 10	4	9.5
	Turenne	9⅞	24 10	4	9.5
	Vauban	9⅞	24 10	4	9.5
	Fulminant	13	21 4	2	10.6
	Tonnerre	13	21 4	2	10.6
Italy	Duilio	21.7	28 0	4	17
	Dandolo	21.7	28 9	4	17
Germany	Sachsen	17.25	19 8	4	10.2
	Baiern	17.25	19 8	4	10.2
	Wurtemberg	17.25	19 8	4	10.2
	Baden	17.25	19 8	4	10.2
	Wespe	8	10 2	1	12
	Viper	8	10 2	1	12
	Biene	8	10 2	1	12
	Mücke	8	10 2	1	12
	Scorpion	8	10 2	1	12
	Basilisk	8	10 2	1	12
	Cameleon	8	10 2	1	12
	Crocodil	8	10 2	1	12
Brazil	Riachuelo	11	20 0	4	9

It will be seen that the list is large and every one of these powerful guns could be brought to bear upon the important cities which dot our seacoast.

I also have from the same source clipped a statement of the naval strength and annual expenditures for naval purposes of different countries, which I submit in connection with the statement I have already made of the present condition of the guns of the Army and Navy and of the ships of our Navy.

Naval strength and annual expenditure of different countries.

Nations.	Total ships.	Available ships.	Total personnel.	Annual expenditure.	Population.
Great Britain	388	336	58,000	$56,928,850	35,246,633
France	436	308	67,636	46,884,161	37,405,290
Russia	197	185	28,400	25,326,000	98,356,100
Italy	76	60	12,032	11,529,710	28,452,639
Germany	99	96	13,000	9,802,880	45,194,172
Spain	145	142	21.700	7,466,538	16,625,860
Brazil	34	34	5,800	6,100,000	10,108,291
Austria-Hungary	49	44	9,800	5,369,295	37,741,413
Holland	138	138	10,500	5,032,450	1,400,000
China	49	49	....	5,000,000	434,626,000
Chili	10	10	1,600	4,359,893	2,400,396
Turkey	100	100	40,400	4,000,000	25,036,480
Denmark	59	59	1,300	3,081,892	2,096,400
Argentine Republic	25	25	1,500	2,915,000	2,400,000
Japan	31	29	7,000	2,103,630	36,700,118
Portugal	26	26	3,500	1,918,789	4,550,699
Sweden	58	57	4,000	1,448,064	4,465,668
Greece	25	25	3,450	885,635	1,979,423
Norway	32	32	1,000	470,000	1,806,900
Roumania	10	10	700	123,000	5,376,000
Mexico	5	5	720	....	9,389,461

This amendment is intended to enable the Secretary of War to commence the foundations for fortifications. In the judgment of the board on fortifications or other defenses this work should be carried on *pari passu* with the work of providing guns for the fortifications.

I have here a joint letter of the Chief of Engineers and the Chief of Ordnance, submitted at my request at the time I proposed to offer for reference to the Committee on Coast Defenses an amendment for this purpose. These officers evidently understood that my proposed amendment contemplated an appropriation for furnishing guns and armor, as well as foundations; but the communication itself contains some things that I have not seen elsewhere, and which I consider a valuable contribution to the general fund of information upon this subject. These officers call attention to the necessity of making an appropriation for foundations at the same time appropriations are made for securing metal for guns. I ask to have the Secretary read it.

The PRESIDENT *pro tempore.* The letter will be read.

The Secretary read as follows:

[Personal.]

OFFICE OF THE CHIEF OF ENGINEERS, UNITED STATES ARMY,
Washington, D. C., April 29, 1886.

SIR: In submitting to you the proposed amendment to the fortification bill, should this when it comes from the House need modification, we beg leave to add a few considerations which we hold to be pertinent to the object and necessity of coast defenses, meaning by that term coast batteries with their armament, and leaving out of consideration, for the moment at least, such auxiliaries as torpedo boats and floating batteries.

And first, lest public opinion be led astray by the fallacy that a coast as extensive as ours, fully 4,000 miles in extent, could be defended by any naval force which the resources of the country would ever create, we will begin here by stating that this serious error has arisen and been nurtured from the example of England (which has heretofore and for the future will ever owe its protection from invasion to the navy), without discriminating between the radically different conditions and circumstances of the two countries. England has coast batteries, armored casemates, and has constructed one turret at Dover, but these coast batteries are to prevent sudden descents of a hostile navy upon her dockyards and important seaports.

Their objects are local, and such defenses would never prevent the landing upon a coast of an army, but for the powerful navy which for this purpose it has been the intention to keep at a strength superior to the force of a single hostile power or even to a probable combination of powers. We have also seen in past wars that her efforts have been persistently and successfully directed to the destruction of her adversary's naval power as the pledge of her own security.

Her proximity to the Continent, joined to the necessity of distributing her land forces over various stations and colonies throughout the world, would leave her defenseless against invasion from her powerful adversaries but for a predominance, and that a large one, of her naval power over any other nation. The small extent of her coast renders a complete defense by a navy practicable, as it is also the sole means upon which she could rely for such object.

Our situation is radically different; our distance from any powerful nation renders an invasion in force improbable and even impossible, and an invading army if landed must finally succumb to the large force we could assemble (since our strength would not be frittered away by the necessity of protecting colonies and foreign stations), or would be compelled to re-embark. What temptation, therefore, would an enemy have to make war against us? The answer is evident and it is, the occupation of our large seaports if left undefended. But if hostile fleets be prevented from reaching these cities or effectually bombarding them, what prize is left to an enemy's efforts?

With every important seaport that is fortified against naval attack we have so far diminished the chances of war. How many should be so fortified in order to eliminate the probability of war against us is a question which the statesman as well as the soldier should be called upon to answer.

Wars nowadays have been made so costly that the successful party relies upon making the defeated one pay expenses; but what basis to a foreign power would there be for such calculation, when invasion becomes impossible and our rich seaports shall be secure from naval attack by batteries and submarine mines?

So far a navy for defense has not been invoked, and it is plainly seen that the defense would be complete by simply barring by other means the way to the principal seaports.

The fortification board in its report, page 7, states:

"It is proper to discuss briefly the objects to be secured by a defense of the coasts and the nature of the attack to which these are most exposed.

"To the last named the answer would be a naval attack. An attack by land, if attempted in force, must be resisted by the armies of the country, and the mode of doing this it is not necessary here to consider.

"The objects against which a naval attack would be directed are:"

These are enumerated, as first, the important commercial ports. "In the second place, vessels in the foreign trade must be protected—this at sea could be performed only by the navy—but when these arrive upon the coast, they should find fortified harbors of refuge provided for their security."

On page 9, the report goes on: "The defenses, as to character and kind with reference to armament, should be fixed and floating, one or both, according to locality, armed with powerful cannon needed to repel attack from the most formidable ships.

"In the phrase 'floating defenses' first used, the armored sea-going ship of the navy is not referred to. We have none of that kind, and if hereafter built in sufficient number and power they would act offensively and not be confined to the defense of ports. The floating defenses mean floating batteries designed specially for operating in harbors or close to the land, armored more heavily and armed with heavier guns than any probable adversary. Of considerable less draught than the armored sea-going ship they could, by operating among the shoals, avoid ramming, and even torpedoes. To gain such advantages speed must be sacrificed; but it is quite evident that for the defense of harbors and bays the advantages of extra thickness of armor and of superior power of gun more than compensate for that loss.

"These batteries are costly, and their use should be restricted to cases of necessity; as, for instance, where the port is so near to deep water that a bombardment may not otherwise be prevented; also in localities where the nature of the foundations forbids the construction of fixed defenses, or where the width of the channel is too great to be well swept from shore batteries."

For the reasons assigned in the last paragraph floating batteries were recommended as parts of defense at New Orleans and San Francisco.

In the estimates made by the board, page 29 of the report, is found the following: "An appropriation for the building of floating batteries, the type to be selected by a joint board of Army and Navy officers." * * *

The board also recommended as a useful auxiliary the employment of torpedo boats in the active defense of harbors.

"Their use will be quite general: First, in disturbing blockades and preventing these being made close, as no fleet would like to lie over night within striking distance of a station of these boats; second, in attacking an enemy's ship enveloped in fog or smoke; third, in relieving a vessel pursued by the enemy; fourth, in defending the mines by night and day against attempts at countermining, and in many other ways not necessary to recapitulate."

The board steadily adhered after a deliberate study of the question of coast defense, taking into consideration also all modern appliances of moment useful for attack and defense, to the principles laid down by preceding boards from 1820 to the present time, that the defense of the coast could be made complete by the construction of batteries on shore armed with guns powerful enough to pierce the ships of the period, assisted and supplemented in exceptional cases already referred to by floating batteries; and to these should be added obstructions in the channel to detain the hostile fleet under the fire of the guns on land.

The Navy was not to be relied upon for the defense of ports, and for this decision there were many reasons: First, the immense number of ships that would be required to protect such extent of coast and to be in sufficient force everywhere to meet an enemy's fleet which might strike anywhere. Second, the exceeding great cost per gun in comparison with land defenses. Third, the risk of being disabled by storms at a critical moment and the uncertain issue of a naval engagement. This is especially the case at the present time owing to the free use of self-moving torpedoes and other modern destructive agencies. Fourth, the greater cost of keeping in repair, and the expenses of going out of and into commission.

The land defenses may take the forms of armored turrets, armored casemates, and earth batteries, in every case mounted with modern heavy guns of caliber sufficient to penetrate armored vessels; and to these are added lines of submarine mines operated by electricity to serve as obstructions and detain the fleet under fire.

While the board was very emphatic in recommending forged steel as the material for guns, their opinion as to the material for armor-plates was not so decided. On page 9 you will find as follows: "The materials used in construction for the armor might either be iron or steel, although the latest experiments indicate the superiority of forged-steel plates. While the board is of opinion that forged-steel plates should be used, it also recommends that immediate experiments be undertaken to determine the most suitable armor for turrets and casemates."

Our engineers claim for rolled iron plates some points of superiority over steel plates—and it has been suggested that a test should be made of separate iron and steel plates combined in a composite shield, as it is argued that such form might combine the best qualities of resistance of the two metals.

We will remark here that similar tests are made continually among the most advanced nations to test the qualities in their contracts for armor—and are specially required in this country where the manufacture of armor will require such action to bring it up to the high standard of resistance required.

It was the idea of the board that the construction of other parts of the batteries should advance *pari passu* with the manufacture of armor and guns, in order that these should be utilized so soon as they were ready. The following are the words of the report, page 6: "That there may be no delay in mounting the guns as fast as completed, the work upon the extensive foundations for the gun emplacements, as well as magazines, shell-rooms, engine-rooms, and other constructions necessary for the service for the guns, should be commenced at the earliest moment."

We will conclude by stating in brief: That land batteries armed with modern heavy guns, in conjunction with lines of submarine mines across the practicable channels of entrance—these lines being defended by the fire of the batteries against attempts to remove the mines—afford with few exceptional cases the requisite protection against the passage of hostile fleets.

The exceptional cases are the heads of the passes in the Mississippi River at which places the foundations for heavy batteries do not exist, and at San Francisco where the distance between some of the batteries is too great to admit of a good cross-fire from them. In both of these cases the defense may be supplemented with floating batteries of peculiar construction with extra heavy armor, thicker than a sea-going vessel could carry.

Torpedo-boats, although not essential to security, would be useful at many points along the coast.

The preference in preparations for defense, if any are to be postponed, it is needless to state should be given to those which are essential.

One advantage of land-batteries over armored ships consists in the greater thickness of armor and the ability to increase that thickness without reconstructing the works, whenever the increase of penetration of projectiles may demand additional protection to the guns.

Very respectfully, your obedient servants,

S. V. BENÉT,
Brigadier-General, Chief of Ordnance.
JOHN NEWTON,
Chief of Engineers.

Hon. JOSEPH N. DOLPH,
United States Senate.

Mr. DOLPH. I call the attention of the Senate again to the quotation made in the letter just read from the report of the board on fortifications or other defenses. It is as follows:

> That there may be no delay in mounting the guns as fast as completed, the work upon the extensive foundations for the gun emplacements, as well as magazines, shell-rooms, engine-rooms, and other constructions necessary for the service of the guns, should be commenced at the earliest moment.

This amendment is offered to meet the views here expressed in order that this work of preparing the foundations for the defenses to receive the guns may be commenced at the same time that we commence to provide the gun material. The two ought to go together. The Committee on Appropriations should have reported them together, and I hope the Senate will adopt the amendment offered by me, at least if not as offered in some modified form, so that the work may be commenced.

I desire to call attention to the recommendation of the board on fortifications and other defenses as to what should be appropriated for this purpose, and I insert in my remarks, as the question is of sufficient importance to justify it, the consolidated estimate of the board on fortifications or other defenses of the expense of the fortifications at the twenty-seven ports included in their list. [See opposite page.]

The board say:

> Certain portions only of the whole amount above indicated as necessary are needed at once, namely:
>
> A. An appropriation for gun steel sufficient to induce contracting steel works to prepare for and begin the manufacture of steel forgings for guns of all calibers, $8,000,000.

We have provided for that substantially. We appropriate $6,000,000 by the amendment to this bill already adopted.

Now comes the balance which are unprovided for:

> B. An appropriation for a gun factory with plant sufficient to machine, assemble, and finish the guns, $1,000,000.

We have in part provided for that by making an appropriation for the purchase of machinery for the arsenal at Frankford, near Philadelphia.

> C. An appropriation to inaugurate the building of masonry foundations, engine-rooms, shell-rooms, magazines, &c., necessary to the reception of the armor, guns, &c., $4,000,000 for the first year and $2,000,000 annually thereafter until completed.

All that is proposed by this amendment, all that is asked by the Committee on Coast Defenses for this purpose, is one-half of the amount recommended by the board.

> D. An appropriation for armor and structural metal, $2,000,000 annually until completed.
>
> E. An appropriation for gun-carriages, $1,000,000 annually until completed.
>
> F. An appropriation for the building of floating batteries, the type to be selected by a joint board of Army and Navy officers, $3,000,000 for the first year and $2,000,000 annually until completed.
>
> G. An appropriation for submarine mines and their adjuncts, $1,000,000 for the first year and $500,000 annually thereafter until completed.
>
> H. An appropriation for building torpedo boats, $1,500,000 annually until all are built.

Consolidated estimate.

	Port.	Land defenses.			Armament.		Floating batteries and their armament.	Submarine mines and their adjuncts.	Torpedo boats.	Total.
		Masonry and earthwork.	Armor.	Structural metal.	Guns and mortars.	Carriages.				
1	New York	$5,488,000	$7,950,000	$1,000,000	$6,027,000	$1,992.000		$411,500	$1,080,000	$23,948,500
2	San Francisco	5,656,000	2,250,000	450,000	5,426,000	1,787,000	$10,787,000	494,150	1,080,000	27,868,150
3	Boston	2,214,000	3,100,000	330,000	2,971,000	970,000		245,250	1,080,000	10,910,250
4	The Lake ports	1,648.000	650,000	125,000	598,000	189,800		206,000	*720,000	4,136,800
5	Hampton Roads	1,632,000	2,200,000	230.000	1,608,000	534,000		208,000	1,080,000	7,492,000
6	New Orleans	1,200,000			1,130,000	380,000	8,150,000	130,500	720,000	11,710,500
7	Philadelphia	832,000	1,300,000	130,000	828,000	274,000		114,250	360,000	3,838,250
8	Washington	520,000			512,000	171,000		120,500		1,323,500
9	Baltimore	632,000	650,000	65,000	578,000	190,000		69,000		2,184,000
10	Portland, Me	2,096,000		200,000	1,784,000	587,000		278,500	360,000	5,305,500
11	Narragansett Bay	1,296,000	450,000	150,000	1,374,000	450,000		173,000	360,000	4,253,000
	Total	23,214,000	18,550,000	2,680,000	22,836,000	7,524,800	18,875,000	2,450,650	6,840,000	102,970,450
12	Key West	1,064,000	450,000	150,000	976,000	320,000		86,500	360,000	3,406,500
13	Charleston	872,000		80,000	636.000	210,000		86,500	360,000	2,244,500
14	Mobile	1,372,000		80,000	858,000	284,000		144,000		2,738,000
15	New London	580,000		80,000	308,000	103,000		169,500	1,080,000	2,320,500
16	Savannah	652,000	650,000	65,000	492,000	162,000		222,000		2,243,000
17	Galveston	552,000			232,000	75,000		91,500		950,500
18	Portland, Oreg	849,000			671,000	219,000		100,000	1,080,000	2,919,000
19	Pensacola	520,000		40,000	208,000	71,000		109,000		948,000
20	Wilmington, N. C	640,000	650,000	105,000	335 000	112,000		100,000		1,942,000
21	San Diego	260,000			108,000	36,000		100,000		504,000
22	Portsmouth, N. H	420,000			308.000	103,000		134,350		965,350
23	Cumberland Sound	240,000		40,000	154,000	52,000		150,000		636,000
24	Kennebec River	120,000			81,000	27,000		70,000		298,000
25	New Bedford	152.000			167,000	53,000		150,000		522,000
26	Penobscot River	120,000			81,000	27,000		70,000		298,000
27	New Haven	236,000			103,000	33,000		100 000		472,000
	Grand total	31,863,000	20,300,000	3,320,000	28,554,000	9,411,800	18,875,000	4,334,000	9,720,000	126,377,800

*Torpedo gunboats.

Summing up these recommendations, the board presents the following project for annual appropriations.

Appropriations recommended.

Purpose.	Appropriation for first year.	Future annual appropriations until work is completed.
A. Gun metal	$8,000,000	
B. Gun factory	1,000,000	
C. Masonry, &c	4,000,000	$2,000,000
D. Armor, &c	2,000,000	2,000,000
E. Gun-carriages	1,000,000	1,000,000
F. Floating batteries	3,000,000	2,000,000
G. Submarine mines, &c.	1,000,000	500,000
H. Torpedo boats	1,500,000	1,500,000
Totals	21,500,000	9,000,000

It will be seen that the board recommend a total of $21,500,000 for the first year, and $9,000,000 annually thereafter until this work is completed, and they say that the work of providing the foundations should proceed *pari passu* with the work of providing the guns. The estimate is $13,500,000, or, without the estimate for the gun factory, $12,500,000 is recommended for fortifications not including the estimate for providing the gun metal and for the gun factory. The Committee on Coast Defenses has modestly asked of the Senate, and all that I am asking by this amendment, is $2,000,000 out of the $12,500,000 estimated, in order that the work of providing foundations may be proceeded with at the same time with the work of providing the guns, so that when the guns are constructed there may be some place in readiness to receive them. If we are going to enter upon the matter of coast defenses and of providing guns for the Army, I think the Senator in charge of the bill will agree with me, I think he does agree with me now, that we had better make this appropriation in order to commence this branch of the work.

I had intended, but the Senator from Connecticut saved me the trouble, to refer to the reports and recommendations of the several boards and committees on this subject. I shall not do it. I will only state that as the reports of the several committees and boards who have investigated the subject of coast defenses, and of ordnance, ships, &c., show the United States has no navy worthy of the name, not a single armed vessel of war, no forts capable of resisting attacks of vessels armed with modern guns, and no modern guns except a few constructed and in process of construction for the armament of new cruisers.

There is not a plant in the United States capable of forging a steel ingot required for the manufacture of a steel rifle of over 8 inches caliber. The United States is metallurgically independent of all other nations so far as the construction of ships, armors, guns, and projectiles are concerned. We possess the metals necessary to cast and forge steel ingots of the best quality suitable for the construction of modern steel rifles of the largest caliber. Our citizens possess the knowledge and experience, or will soon acquire it, if sufficient inducements are offered;

to supply the steel necessary for the construction of modern guns. Our citizens stand ready to provide it, if the United States will guarantee a reasonable return for the investment.

The officers of the Army and Navy charged with such matters are well informed upon all subjects connected with the Navy and coast defenses. Their recommendations accord with the conclusion arrived at by the great European powers after years of costly experiment. Competent boards have recommended the character and types of guns, armor, fortifications, and other defenses, and have recommended a plan for the same. Public sentiment demands the commencement of the work, the condition of the Treasury justifies it, the national honor and national security demand it. The cost is not great compared with the importance of the objects to be secured. Congress should assume the responsibility at once of commencing the work and making the necessary appropriations for that purpose.

Mr. President, owing to the lateness of the hour and the natural impatience of the Senate at this late day in the session I shall not dwell upon this matter further. I hope the amendment will be adopted. If it is considered that the amount is too large I hope it will be reduced and at least some appropriation will be made by which we shall adopt the plan of the board on fortifications or other defenses for the defense of our seacoast, and authorize the commencement of the work. No matter how small the amount is, if the appropriation is made much will have been gained by adopting a general plan.

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